
TITLE 326 AIR POLLUTION CONTROL BOARD

**FINDINGS AND DETERMINATION OF THE COMMISSIONER
PURSUANT TO [IC 13-14-9-8](#) AND DRAFT RULE
LSA Document #10-495**

**DEVELOPMENT OF AMENDMENTS TO RULES CONCERNING THE NATIONAL AMBIENT AIR QUALITY
STANDARDS FOR NITROGEN DIOXIDE AND SULFUR DIOXIDE**

PURPOSE OF NOTICE

The Indiana Department of Environmental Management (IDEM) has developed draft rule language for amendments to [326 IAC 1-3-4](#) concerning the national ambient air quality standards for nitrogen dioxide and sulfur dioxide. IDEM is soliciting written comment on the draft rule language and will schedule a public hearing before the Air Pollution Control Board (board) for consideration of adoption of these rules.

CITATIONS AFFECTED: [326 IAC 1-3-4](#).

AUTHORITY: [IC 13-14-8](#); [IC 13-17-3-4](#); [IC 13-17-3-11](#).

STATUTORY REQUIREMENTS

[IC 13-14-9-8](#) recognizes that under certain circumstances it may be appropriate to reduce the number of public comment periods and public hearings routinely provided. In cases where the commissioner determines that there is no anticipated benefit from a second public comment period and first public hearing, IDEM may forgo these opportunities for public comment and proceed directly to the public hearing and board meeting at which the draft rule is considered for adoption. Two opportunities for public comment (with this notice and at the public hearing prior to adoption of the rule) remain under this procedure.

If the commissioner makes the determination of no anticipated benefit required by [IC 13-14-9-8](#), the commissioner shall prepare written findings and publish those findings in the Indiana Register prior to the board meeting at which the draft rule is to be considered for adoption and include them in the board packet prepared for that meeting. This document constitutes the commissioner's written findings pursuant to [IC 13-14-9-8](#).

The statute provides for this shortened rulemaking process if the commissioner determines that:

(1) the rule constitutes:

(A) an adoption or incorporation by reference of a federal law, regulation, or rule that:

(i) is or will be applicable to Indiana; and

(ii) contains no amendments that have a substantive effect on the scope or intended application of the federal law or rule;

(B) a technical amendment with no substantive effect on an existing Indiana rule; or

(C) a substantive amendment to an existing Indiana rule, the primary and intended purpose of which is to clarify the existing rule; and

(2) the rule is of such nature and scope that there is no reasonably anticipated benefit to the environment or the persons referred to in [IC 13-14-9-7\(a\)\(2\)](#) from:

(A) exposing the rule to diverse public comment under [IC 13-14-9-3](#) or [IC 13-14-9-4](#);

(B) affording interested or affected parties the opportunity to be heard under [IC 13-14-9-3](#) or [IC 13-14-9-4](#); and

(C) affording interested or affected parties the opportunity to develop evidence in the record collected under [IC 13-14-9-3](#) and [IC 13-14-9-4](#).

BACKGROUND

The Clean Air Act requires the United States Environmental Protection Agency (U.S. EPA) to set primary and secondary National Ambient Air Quality Standards (NAAQS) for the six common air pollutants considered harmful to public health and the environment including lead, ground-level ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. For each of these pollutants, the Clean Air Act requires U.S. EPA to set the health-based or "primary" standards at a level judged to be "requisite to protect the public health with an adequate margin of safety" and establish secondary standards that are requisite to protect public welfare from "any known or anticipated effects associated with the pollutant in the ambient air" including effects on crops, vegetation, wildlife, buildings and national monuments, and visibility. The law requires U.S. EPA to review these standards once every five years to determine whether revisions to the standards are appropriate. In 2010, U.S. EPA issued a revised primary NAAQS for nitrogen dioxide in the February 9, 2010, Federal Register published at 75 FR 6474 and issued a revised primary NAAQS for sulfur dioxide in the June 22, 2010, Federal Register published at 75 FR 35520.

Nitrogen dioxide (NO₂) belongs to a family of highly reactive gases called nitrogen oxides. These gases form

when fuel is burned at high temperatures and come principally from motor vehicle exhaust and stationary fuel combustion sources such as electric utilities and industrial boilers. A suffocating, brownish gas, NO_2 is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates. It also plays a major role in the atmospheric reactions that produce ground-level ozone.

NO_2 can irritate the lungs and lower resistance to respiratory infections such as influenza. Exposure to low levels of NO_2 may cause increased bronchial reactivity and make young children more susceptible to respiratory infections, while long-term exposure to high levels of NO_2 can lead to chronic bronchitis. Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.

U.S. EPA first established standards for NO_2 in 1971, setting both a primary standard (to protect health) and a secondary standard (to protect the public welfare) at 100 micrograms per cubic meter (53 parts per billion (ppb)), averaged annually. This standard was reviewed by U.S. EPA in 1985 and 1996 and was retained. The U.S. EPA has determined, based on new studies, that the 1971 primary annual average NO_2 standard of 53 ppb alone is not sufficient to protect public health with an adequate margin of safety. Therefore, with the final rule published in the February 9, 2010, Federal Register, U.S. EPA strengthened the NAAQS for NO_2 , to increase protection of public health, by adding a new one-hour NO_2 standard at 100 ppb and retaining the annual average NO_2 standard at a level of 53 ppb.

In addition to establishing an averaging time and level, U.S. EPA is also setting a new "form" for the standard. The form is the air quality statistic used to determine if an area meets the standard. The form for the 1-hour NO_2 standard is the 3-year average of the 98th percentile of the annual distribution of daily maximum 1-hour average concentrations.

This new standard will protect public health by limiting people's exposures to short-term peak concentrations of NO_2 , which primarily occur near major roads, and by limiting community-wide NO_2 concentrations to levels below those that have been linked to respiratory-related emergency department visits and hospital admissions in the United States. It is consistent with the recommendations of the majority of the Clean Air Scientific Advisory Committee (CASAC). CASAC provides independent advice to the U.S. EPA on the relevant scientific and technical information and on the standards. This action does not impact the secondary NO_2 standard, set to protect public welfare, of an annual average standard of 53 ppb.

U.S. EPA is also establishing new ambient air monitoring and reporting requirements for NO_2 in order to determine compliance with the new standard. In urban areas, monitors are required near major roads as well as in other locations where maximum concentrations are expected. Additional monitors are required in large urban areas to measure the highest concentrations of NO_2 that occur more broadly across communities. Working with the states, U.S. EPA will site a subset of monitors in locations to help protect communities that are susceptible and vulnerable to NO_2 -related health effects.

Sulfur dioxide (SO_2) is one of a group of highly reactive gases known as sulfur oxides. SO_2 is the component of greatest concern and is used as the indicator for the larger group of gaseous sulfur oxides. The largest sources of SO_2 emissions are from fossil fuel combustion at power plants and other industrial facilities. Smaller sources of SO_2 emissions include industrial processes, such as extracting metal from ore, and the burning of high sulfur containing fuels by locomotives, large ships, and nonroad equipment.

Short-term exposure to SO_2 , ranging from five minutes to 24 hours, has been linked to an array of adverse respiratory effects including narrowing of the airways which can cause difficulty breathing (bronchoconstriction) and increased asthma symptoms. Studies have also shown a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics.

U.S. EPA first established standards for SO_2 in 1971, setting a 24-hour primary standard at 0.14 parts per million (ppm) (140 ppb) and an annual average standard at 0.03 ppm (30 ppb) to protect health. U.S. EPA also set a 3-hour average secondary standard at 0.5 ppm (500 ppb) to protect public welfare. This standard was last reviewed by U.S. EPA in 1996 and was retained. The U.S. EPA has determined, based on new studies, that the 1971 24-hour and annual primary standards are not sufficient to protect public health with an adequate margin of safety. Therefore, with the final rule published in the June 22, 2010, Federal Register, U.S. EPA strengthened the NAAQS for SO_2 by establishing a new 1-hour standard at a level of 75 ppb to reduce people's exposure to high short-term (five minutes to 24 hours) concentrations of SO_2 . U.S. EPA is revoking the two existing primary standards of 140 ppb evaluated over 24-hours and 30 ppb evaluated over an entire year because they will not add additional public health protection given a 1-hour standard at 75 ppb.

U.S. EPA is also setting a new form for the standard. This new form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations. U.S. EPA is also revising the ambient air monitoring requirements for SO_2 . States will need to make adjustments to the existing monitoring network in order to ensure that monitors meeting the network design regulations for the new 1-hour SO_2 standard are sited and operational by January 1, 2013.

This new standard will protect public health by reducing hospital admissions, emergency room visits, work days lost due to illness, and cases of aggravated asthma and chronic bronchitis, among other benefits. It is

consistent with the advice and recommendations of CASAC. This action does not impact the secondary SO₂ standard, set to protect public welfare.

In this rulemaking, IDEM is proposing to amend [326 IAC 1-3-4](#) to incorporate sections of the rule published in the February 9, 2010, Federal Register, 75 FR 6531, to revise the primary NAAQS for NO_x and to incorporate sections of the rule published in the June 22, 2010, Federal Register, 75 FR 35592-35593², to revise the primary NAAQS for SO₂. By incorporating the federal regulations to revise the primary NAAQS for NO_x and SO₂, this rulemaking helps to ensure that state rules are consistent with federal regulations.

[IC 13-14-9-4](#) Identification of Restrictions and Requirements Not Imposed under Federal Law

No element of the draft rule imposes either a restriction or a requirement on persons to whom the draft rule applies that is not imposed under federal law. This draft rule imposes no restrictions or requirements because it is a direct adoption of federal requirements that are applicable to Indiana and contains no amendments that have a substantive effect on the scope or application of the federal rule.

Potential Fiscal Impact

Because this is an incorporation of existing federal law, no impact beyond that already imposed by the federal law is imposed by this rulemaking. Therefore, there will be no fiscal impact from the implementation of this rulemaking.

Public Participation and Workgroup Information

At this time, no workgroup is planned for the rulemaking. If you feel that a workgroup or other informal discussion on the rule is appropriate, please contact Manda Clevenger, Rule and State Implementation Plan Development Section, Office of Air Quality at (317) 232-8229 or (800) 451-6027 (in Indiana).

Small Business Assistance Information

IDEM established a compliance and technical assistance (CTAP) program under [IC 13-28-3](#). The program provides assistance to small businesses and information regarding compliance with environmental regulations. In accordance with [IC 13-28-3](#) and [IC 13-28-5](#), there is a small business assistance program ombudsman to provide a point of contact for small businesses affected by environmental regulations. Information on the CTAP program, the monthly CTAP newsletter, and other resources available can be found at:

<http://www.in.gov/idem/4108.htm>

For purposes of [IC 4-22-2-28.1](#), the Small Business Regulatory Coordinator for this rule is:

Alison Beumer
IDEM Compliance and Technical Assistance Program - OPPTA
MC 60-04 IGCS W041
100 North Senate Avenue
Indianapolis, IN 46204-2251
(317) 232-8172 or (800) 988-7901
ctap@idem.in.gov

For purposes of [IC 4-22-2-28.1](#), the Small Business Ombudsman designated by [IC 5-28-17-5](#) is:

Ryan Asberry
Indiana Economic Development Corporation
One North Capitol, Suite 700
Indianapolis, IN 46204
(317) 232-8962
smallbizombudsman@iedc.in.gov

Resources available to regulated entities through the small business ombudsman include the ombudsman's duties stated in [IC 5-28-17-5](#), specifically [IC 5-28-17-5\(9\)](#), investigating and attempting to resolve any matter regarding compliance by a small business with a law, rule, or policy administered by a state agency, either as a party to a proceeding or as a mediator.

The Small Business Assistance Program Ombudsman is:

Brad Baughn
IDEM Small Business Assistance Program Ombudsman
MC 50-01 IGCN 1307
100 North Senate Avenue
Indianapolis, IN 46204-2251
(317) 234-3386
bbaughn@idem.in.gov

FINDINGS

The commissioner of IDEM has prepared findings regarding this rulemaking on the incorporation of federal regulations that amends [326 IAC 1-3-4](#) concerning the national ambient air quality standards for nitrogen dioxide and sulfur dioxide as required by federal law. These findings are prepared under [IC 13-14-9-8](#) and are as follows:

- (1) This rule is the direct adoption of federal requirements that are applicable to Indiana, and it contains no amendments that have a substantive effect on the scope or intended application of the federal rule.

- (2) Indiana is required by the Clean Air Act to adopt these requirements as state rule.
- (3) The public will benefit from prompt adoption of this rule because it will ensure that state rules are consistent with federal regulations.
- (4) I have determined that under the specific circumstances pertaining to this rule, there would be no benefit to the environment or to persons to be regulated or otherwise affected by this rule from the first public comment period and first public hearing.
- (5) The draft rule is hereby incorporated into these findings.

Thomas W. Easterly
Commissioner
Indiana Department of Environmental Management

REQUEST FOR PUBLIC COMMENTS

This notice requests the submission of comments on the draft rule language, including suggestions for specific revisions to language to be contained in the rule. Mailed comments should be addressed to:

#10-495(APCB) NO₂ and SO₂ NAAQS
Manda Clevenger Mail Code 61-50
Rule and State Implementation Plan Development Section
Office of Air Quality
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, Indiana 46204

Hand delivered comments will be accepted by the receptionist on duty at the tenth floor reception desk, Office of Air Quality, 100 North Senate Avenue, Indianapolis, Indiana.

Comments may be submitted by facsimile at the IDEM fax number: (317) 233-5967, Monday through Friday, between 8:15 a.m. and 4:45 p.m. Please confirm the timely receipt of faxed comments by calling the Rule and State Implementation Plan Development Section at (317) 234-6530.

COMMENT PERIOD DEADLINE

Comments must be postmarked, faxed, or hand delivered by September 17, 2010.

Additional information regarding this action may be obtained from Manda Clevenger, Rule and State Implementation Plan Development Section, Office of Air Quality, (317) 232-8229 or (800) 451-6027 (in Indiana).

DRAFT RULE

SECTION 1. [326 IAC 1-3-4](#), PROPOSED TO BE AMENDED AT [20100317-IR-326100127FDA](#), SECTION 1, IS AMENDED TO READ AS FOLLOWS:

[326 IAC 1-3-4](#) Ambient air quality standards

Authority: [IC 13-14-8](#); [IC 13-17-3-4](#); [IC 13-17-3-11](#)

Affected: [IC 13-15](#); [IC 13-17](#)

Sec. 4. (a) All measurements of air quality that are expressed as mass per unit volume, other than for the particulate matter (PM_{2.5}) standards contained in subsection (b)(8) and lead (Pb) standards contained in subsection (b)(6), shall be corrected to a reference temperature of twenty-five (25) degrees Celsius and a reference pressure of seven hundred sixty (760) millimeters of mercury (one thousand thirteen and two-tenths (1,013.2) millibars), as micrograms per cubic meter (µg/m³). Measurements of PM_{2.5}, for purposes of comparison to the standards contained in subsection (b)(8), and Pb, for purposes of comparison to the standards contained in subsection (b)(6), shall be reported based on actual ambient air volume measured at the actual ambient temperature and pressure at the monitoring site during the measurement period.

(b) Ambient air quality standards are as follows:

(1) Sulfur oxides as sulfur dioxide (SO₂) requirements are as follows:

(A) For the primary standards, the following values shall represent **one (1) hour ambient air quality standard**, the maximum permissible ambient air quality levels: **level shall be**

(i) ~~Eighty (80) µg/m³ (three hundredths (0.03) parts per million (ppm)) annual arithmetic mean not to be exceeded in a calendar year.~~

(ii) ~~Three hundred sixty five (365) µg/m³ (fourteen hundredths (0.14) ppm) maximum twenty four (24) hour average concentration not to be exceeded more than once per calendar year. The twenty four (24) hour~~

averages shall be determined from successive nonoverlapping three (3) hour blocks starting at midnight each calendar day. **seventy-five (75) parts per billion (ppb). The one (1) hour standard is attained when the three (3) year average of the annual ninety-ninth percentile of the daily maximum one (1) hour average concentration is less than or equal to seventy-five (75) ppb, as determined in accordance with 40 CFR 50, Appendix T*, added at 75 FR 35595-35597, and measured in the ambient air as SO₂ by a reference method based on 40 CFR 50, Appendix A*, redesignated Appendix A-2 at 75 FR 35595 or Appendix A-1*, added at 75 FR 35593-35595, or an equivalent method designated in accordance with 40 CFR 53*, as amended at 75 FR 35597-35601.**

(B) For the secondary standards, **standard**, the following value shall represent the maximum permissible ambient air quality levels: **level:** one thousand three hundred (1,300) µg/m³ (five-tenths (0.5) ppm) maximum three (3) hour concentration not to be exceeded more than once per year. The three (3) hour averages shall be determined from successive nonoverlapping three (3) hour blocks starting at midnight each calendar day.

(C) SO₂ values may be converted to ppm using the conversion factor two thousand six hundred twenty (2,620) µg/m³ = one (1) ppm.

(2) Total suspended particulates (TSP) requirements are as follows:

(A) For primary standards, the following values shall represent the maximum permissible ambient air quality levels:

(i) Seventy-five (75) µg/m³ annual geometric mean.

(ii) Two hundred sixty (260) µg/m³ maximum twenty-four (24) hour average concentration not to be exceeded more than one (1) day per year.

(B) For secondary standards, the following value shall represent maximum permissible ambient air quality levels: one hundred fifty (150) µg/m³ maximum twenty-four (24) hour average concentration not to be exceeded more than one (1) day per year.

(3) Carbon monoxide (CO) requirements are as follows:

(A) For primary and secondary standards, the following values shall represent the maximum permissible ambient air quality levels:

(i) Ten (10) milligrams per cubic meter (mg/m³) (ten thousand (10,000) µg/m³) (nine (9) ppm) maximum eight (8) hour average concentration not to be exceeded more than once per year.

(ii) Forty (40) mg/m³ (forty thousand (40,000) µg/m³) (thirty-five (35) ppm) maximum one (1) hour average concentration not to be exceeded more than once per year.

(B) CO values may be converted to ppm using the conversion factor one thousand one hundred forty-five (1,145) µg/m³ = one (1) ppm.

(4) Ozone (O₃) requirements are as follows:

(A) For the one (1) hour ozone standards, the level of the one (1) hour primary and secondary ambient air quality standards for ozone measured by a reference method based on 40 CFR 50, Appendix D* and designated in accordance with 40 CFR 53* is twelve-hundredths (0.12) ppm (two hundred thirty-five (235) µg/m³). The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above twelve-hundredths (0.12) ppm (two hundred thirty-five (235) µg/m³) is equal to or less than one (1) as determined by 40 CFR 50, Appendix H*.

(B) For the eight (8) hour ozone standards, the:

(i) level of the eight (8) hour primary and secondary ambient air quality standards for ozone, measured by a reference method based on 40 CFR 50, Appendix D* and designated in accordance with 40 CFR 53*, is eight-hundredths (0.08) ppm, daily maximum eight (8) hour average; and

(ii) eight (8) hour primary and secondary ozone ambient air quality standards are met at an ambient air quality monitoring site when the average of the annual fourth highest daily maximum eight (8) hour average ozone concentration is less than or equal to eight-hundredths (0.08) ppm as determined in accordance with 40 CFR 50, Appendix I*.

(C) O₃ values may be converted to ppm using the conversion factor one thousand nine hundred sixty-five (1,965) µg/m³ = 1.0 ppm.

(5) Nitrogen dioxide (NO₂) requirements are as follows:

(A) For the primary one (1) hour ambient air quality standard, the maximum permissible ambient air quality level shall be one hundred (100) ppb, one (1) hour average concentration, measured in the ambient air as NO₂. The one (1) hour standard is attained when the three (3) year average of the annual ninety-eighth percentile of the daily maximum one (1) hour average concentration is less than or equal to one hundred (100) ppb, as determined in accordance with 40 CFR 50, Appendix S*, added at 75 FR 6532-6534.

(A) (B) For primary and secondary standards, the following value shall represent the maximum permissible ambient air quality level: one hundred (100) µg/m³ (fifty-three thousandths (0.053) ppm) annual arithmetic mean concentration in a calendar year.

(B) (C) NO₂ values may be converted to ppm using the conversion factor one thousand eight hundred eighty

(1,880) $\mu\text{g}/\text{m}^3$ = one (1) ppm.

(6) Pb: For primary and secondary standards, the following value shall represent the maximum permissible ambient air quality level: fifteen-hundredths (0.15) $\mu\text{g}/\text{m}^3$, arithmetic mean concentration over a three (3) month period. The standards are attained when the maximum arithmetic three (3) month mean concentration for a three (3) year period is less than or equal to fifteen-hundredths (0.15) $\mu\text{g}/\text{m}^3$, as determined in accordance with 40 CFR 50, Appendix R* and measured in the ambient air as Pb by either:

(A) a reference method based on 40 CFR 50, Appendix G*, and designated in accordance with 40 CFR 53*;
or

(B) an equivalent method designated in accordance with 40 CFR 53*.

(7) PM_{10} : For primary and secondary standards, the following values shall represent the maximum permissible ambient air quality levels:

(A) Fifty (50) $\mu\text{g}/\text{m}^3$ annual arithmetic mean. The standards are attained when the expected annual arithmetic mean concentration, as determined in accordance with 40 CFR 50, Appendix K*, is less than or equal to fifty (50) $\mu\text{g}/\text{m}^3$.

(B) One hundred fifty (150) $\mu\text{g}/\text{m}^3$ maximum twenty-four (24) hour average concentration. The standards are attained when the expected number of days per calendar year with a twenty-four (24) hour average concentration above one hundred fifty (150) $\mu\text{g}/\text{m}^3$, as determined in accordance with 40 CFR 50, Appendix K*, is equal to or less than one (1).

(8) $\text{PM}_{2.5}$: For primary and secondary standards, the following values shall represent the maximum permissible ambient air quality levels:

(A) Fifteen (15) micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) annual arithmetic mean concentration. The standards are attained when the annual arithmetic mean concentration is less than or equal to fifteen (15) $\mu\text{g}/\text{m}^3$, as determined in accordance with 40 CFR 50, Appendix N* and measured in the ambient air as $\text{PM}_{2.5}$ by either:

(i) a reference method based on 40 CFR 50, Appendix L*, and designated in accordance with 40 CFR 53*;
or

(ii) an equivalent method designated in accordance with 40 CFR 53*.

(B) Sixty-five (65) $\mu\text{g}/\text{m}^3$ twenty-four (24) hour average concentration. The standards are attained when the ninety-eighth percentile twenty-four (24) hour concentration is less than or equal to sixty-five (65) micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), as determined in accordance with 40 CFR 50, Appendix N and measured in the ambient air as $\text{PM}_{2.5}$ by either:

(i) a reference method based on 40 CFR 50, Appendix L*, and designated in accordance of 40 CFR 53*; or
(ii) an equivalent method designated in accordance with 40 CFR 53*.

*These documents are incorporated by reference. Copies may be obtained from the Government Printing Office, 732 North Capitol Street NW, Washington, D.C. 20401 or are available for review and copying at the Indiana Department of Environmental Management, Office of Air Quality, Indiana Government Center-North, Tenth Floor, 100 North Senate Avenue, Indianapolis, Indiana 46204.

(Air Pollution Control Board; [326 IAC 1-3-4](#); filed Mar 10, 1988, 1:20 p.m.: 11 IR 2378; filed Apr 13, 1988, 3:35 p.m.: 11 IR 3020; readopted filed Jan 10, 2001, 3:20 p.m.: 24 IR 1477; filed May 21, 2002, 10:20 a.m.: 25 IR 3055; filed Mar 9, 2004, 3:45 p.m.: 27 IR 2224; filed Dec 20, 2004, 2:15 p.m.: 28 IR 1471; filed Mar 6, 2006, 3:00 p.m.: 29 IR 2179)

[Notice of Public Hearing](#)

Posted: 08/18/2010 by Legislative Services Agency

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